DOCUMENT RESUME

ED 350 402 CE 062 020

AUTHOR	Munn, Pamela; And Others
TITLE	Helping Adult Students Cope. Mature Students on Science, Mathematics & Engineering Courses.
INSTITUTION	Scottish Council for Research in Education.
SPONS AGENCY	Scottish Education Dept., Edinburgh.
REPORT NO	ISBN-0-947833-70-6; SCRE-RR-39
PUB DATE	Aug 92
NOTE	60p.
AVAILABLE FROM	Scottish Council for Research in Education, 15 St. John Street, Edinburgh EH8 8JR, Scotland, United Kingdom.
PUB TYPE	Reports - Research/Technical (143)
EDRS PRICE	MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS	Adult Education; Adult Learning; *Adult Students; Ancillary School Services; *Coping; Educational Research; *Engineering; Engineering Education; Foreign Countries; *Mathematics; Mathematics Education; Postsecondary Education; Prior Learning; School Responsibility; School Role; Science Education; *Sciences; *Success
IDENTIFIERS	*Scotland

ABSTRACT

A case study approach was used to investigate what helped adults cope in science, mathematics, or engineering courses in higher education (HE) and further education (FE). The study involved semistructured interviews with 107 adult students and 20 staff in 4 HE and 4 FE institutions in Scotland. Science, engineering, and mathematics students believed it was an advantage to have previous background knowledge and felt that staff often wrongly assumed that students possessed this background knowledge. Five ways in which providers could help adults learn subject content were identified: tutor support, assessment, supplementary or remedial support, study skills, and student self-help. Underpinning the whole process of helping adults to learn was the concept of a good relationship between staff and students. The study found that two factors particularly affected students' ability to cope. High motivation of adults compensated sometimes for lack of background knowledge. Personal problems fell into three categories: finance, child care and family commitments, and other time commitments. Examination of students who withdrew did not reveal a clear profile of such students; reasons for withdrawal involved academic, personal, or employment circumstances. Suggestions were made for providers to consider to help students cope. (Appendixes include 13 references and descriptions of the courses involved in the study.) (YLB)

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ED350402

Helping Adult Students Cope

Mature Students on Science, Mathematics & Engineering Courses

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U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
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SCRE Research Report No 39

First Published August 1992

ISBN 0 947833 70 6

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Report arising from the the Needs of Mature Entrants to Higher and Further Education project (reference R/7/5) funded by the Scottish Office Education Department between January 1990 and December 1991.

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Printed and bound by the Scottish Council for Research in Education.

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Acknowledgements

This study would not have been possible without the co-operation and support of a great many people. We are especially grateful to the staff of the eight case-study institutions who spared time to be interviewed and who gave us access to mature students. The mature students themselves gave generously of their time and spoke frankly and in detail about their experiences and about what helped them to cope with their courses of study. Staff in SCRE helped in various ways. Janette Finlay and Jennie Jackson typed drafts of the final report quickly and accurately while Rosemary Wake advised on the lay-out and design of the final text.

The project's advisory committee helped by providing constructive criticism during the project's various phases and offered us practical help in locating adult enquirers to courses, a strand of our work reported in the SCRE Spotlight series. We are grateful to the Scottish Office Education Department (SOED) for its commitments to research on adult students, funding this study among others. The views reported here are those of the authors and not necessarily those of SCRE or SOED.

1 Introduction

In recent years there has been increased interest from government in adult participation in education and training, particularly in the science, technological and engineering fields. The decline in the numbers of 16-18 year olds in the population and the need for Britain to have a flexible and adaptable workforce have provided the impetus for various initiatives to encourage adults to participate. Such initiatives include the Scottish Wider Access Programme (SWAP) which prepares students for entry to higher education after one year's full-time or two years' part-time study. Students who successfully complete a SWAP access course are guaranteed a place in a higher education (HE) institution. There are currently 16 access courses offering preparation for advanced courses in science, maths, technology or engineering. There have also been initiatives to encourage professional and industrial up-dating of knowledge and skills through returning to study and a range of programmes aimed at particular groups such as women, or the unemployed.

An examination of the most recent Scottish Office Education Department (SOED) statistics on adults in further and higher education shows trends towards increasing levels of participation. For example the increase in the numbers of students registered in non-advanced further education is attributed to the increase in registrations of mature students (those age 21 or over), and there were more than 80,000 such students registered in 1988/89 compared to just over 94,000 younger students (SOED 1990). Statistics for higher education participation show a broadly similar trend. (SOED 1991). There is a projected rise in full-time mature entrants from 8,400 in 1989-90 to around 14,000 in 2000-01, while part-time student numbers are projected to rise from about 50,000 in 1989-90 to 66,800 by the end of the century. It is noteworthy that some 27% of all entrants to full-time higher education in Scotland in 1989/90 were aged 21 or over.

The statistics reveal something of the diversity of provision. Courses are provided in a range of institutions, universities, central institutions and further education colleges, at different levels and through different modes of study, including full-time, part-time and open learning routes. The adult participants themselves are also diverse. Previous research has indicated that adults have a variety of motives in returning to study: return can be an end in itself, part of a series of steps in a carefully constructed career plan or, indeed, a response to particular personal circumstances such as bereavement, or labour market reasons, such as redundancy. In addition adults who return to study do so from different backgrounds and experiences of the education system. Some may be well-qualified with a number of public examination successes behind them; others have few if any academic qualifications. Some have recent experience of studying, others are returning to study after a substantial gap, perhaps after bringing up children or taking early retirement.

The increasing numbers of adults in their student populations pose considerable challenges for HE and FE providers — challenges to which many are responding in terms of, for example, providing courses in a range of modes of study and/or developing progression routes with multiple entry and exit points. While a macro-level view of institutional response is, therefore, beginning to emerge, a micro-level view is less easy to discern. What kinds of institutional provision help adult students to cope with the demands of studying? What kinds of problems, if any, do adult students experience? What distinguishes successful from unsuccessful students? These were some of the questions which guided the research. Surprisingly, there has been little research which has concentrated on adult students' experiences in science, mathematics, engineering and technology courses. What has been done has been quite specific in focus, such as researching science access provision (eg Osborne, 1988; Mason, 1989; Osborne and Woodrow, 1989). In addition to looking at the extent of access provision, such research has found that adults tended to perform less well than younger students in science courses. This was in contrast to social science courses where adults performed as well as, and in some instances better than, younger students (Woodley 1984). Students' experience on electrical engineering courses has been researched by Entwistle et al (1989). This study produced some interesting findings about the difficulties younger students experienced with the subject matter content of these courses. For example, difficulties with aspects of mathematics and electronics were highlighted. This suggests that adult students too might have problems with degree level work in this area.

Research aims

The main aim of the research was to investigate what helped adults cope on science, maths, or engineering courses in higher and further education. This rather general aim was developed by focusing on the following specific research questions:

- Why do adults undertake courses in science, maths or engineering?
- What learning needs and problems do they identify?
- Can successful and unsuccessful students be distinguished in terms of, for example, entry qualifications, personal circumstances, motivation and learning needs?
- What kind of support do FE and HE institutions provide for adult students? Is such support specifically aimed at adults or does it include all students?
- How do adult students perceive the support offered? Do they see ways in which existing support could be developed or improved?
- Are examples of good practice in institutional support to be found? If so, what counts as good practice and why?

These questions were pursued through a small-scale but intensive study of adult students in four HE and four FE institutions. Details about the research design and methods are given below.

Research design

A case-study approach was seen as the most effective way of pursuing our research aims. The absence of a significant body of research on adult students in science courses made a survey inadvisable. A questionnaire would have required a level of precision about question areas and categories of response which did not exist in the research literature. Our research, therefore, is an exploratory study, which, together with other work, can provide a starting point for larger-scale surveys of specific populations of adult students.

The 'case' in the research was a specific course in science, mathematics, or engineering. However, in order to locate the case, we began with a broad sweep of all FE and HE institutions to discover:

- the total numbers of adult students on roll
- the numbers of adult students in science, maths and engineering courses.

We were interested in total numbers because of our interest in institutional support for adult students. We believed that such support was more likely where adult students formed a significant part of the student population. We had a similar reason for identifying science, maths and engineering courses with large numbers of students. In addition, however, we wanted to interview about 15 students per course and needed fairly robust numbers in order to achieve such a sample size.

In selecting our sample we tried to ensure that a range of subjects, level and mode of attendance was covered. We were keen to include at least one access course under SWAP, as potentially providing information about innovative forms of support for adult students.

Table 1.1 shows the range of our case-study courses. Four were in FE colleges and four were in higher education. Of those in FE, two were full-time and two part-time. In HE the situation was a little more complicated. Our original intention was to sample a range of provision, full-time, part-time, open learning and a university-based access course. In the event the small number of adult students participating in the full-time BSc (Engineering Systems) meant that we widened the sample to include students on the full-time HND as well as part-time students on the BSc and MSc programmes.

Table 1.1 shows that we sampled similar forms of provision in both the HE and FE sectors, ranging from the more traditional evening class to the innovative access courses. In addition to interviewing students, we interviewed a small number of staff. Typically these were: a senior member of staff in the relevant department to provide an overview of adult students' experience of the course; a lecturer teaching on the target

course; and a member of the guidance staff or a lecturer with specific guidance responsibilities. In all, a total of 107 students was interviewed, 75 men and 32 women. 20 staff were interviewed, 15 men and five women.

Table 1.1: The case-studies

Institution	Course(s)	Mode	Number of students interviewed	M/F N of staff
Higher Education Sector				
CI1	BSc (Engineering systems) HND (Mechanical Engineering) MSc (Electrical Engineering)	Full-time and part-time) Full-time) Part-time)	12	2/–
CI2	BEng (Engineering)	Part-time	16	1/1
OU	Maths degree units	Open learning	13	1/2
University	Science Access	Evening, day or both	14	3/–
		Total	**55**	**10**
Further Education Sector				
FE1	SCE Physics	Evening	7	3/–
FE2	Science Access	Full-time	17	2/–
FE3	Maths National Certificate modules G2/G3	Open learning	17	–/2
FE4	HND and HNC Electrical/ Electronic Engineering	Full-time	11	3/–
		Total	**52**	**10**

Total number of students interviewed = 107 Total number of staff = 20

The sample was a self-selecting one. All students on the targeted courses were asked to complete a form so that all those who did not meet our definition of an adult student could be filtered out. For the purposes of the research, our definition of an adult student was someone aged 20 or over, who had had a break of at least two years from their initial full-time education. This definition was consistent with that used in our previous research on mature students. Those who met our criteria were invited to participate in the research. This should be borne in mind when reading our findings. The data from these students *illustrate some* of the needs, problems and coping strategies of adults in further and higher education. We cannot claim that these are representative or generalisable. However, the emergence of common problems, such as financial difficulties or lack of subject specific knowledge, across a broad range of students, studying in different institutions and at different levels, suggests that the experiences

of the adult students in our sample may be recognisable to teachers in further and higher education.

The interviews with students and staff were semi-structured, following the main areas of the research questions. The student interviews included questions about their:

— motivation for selecting the course and institution

— experiences of guidance and support at pre-entry, on-going, and pre-exit stages on academic, vocational and personal matters

— experiences while on the course – how were they coping both academically and personally

— future intentions

— personal circumstances and demographics

— perceptions of success.

In addition, the staff interviews covered:

— whether mature students had particular difficulties in relation to the target subjects

— factors that inhibited and promoted success for adults

— what support was available for adults and how effective this was

— measures to attract adults to the target courses and to make access to them easier.

In carrying out the interviews, we were responsive to issues and concerns raised by staff and students. The semi-structured approach means that there were opportunities to probe responses and to clarify and explore particular problems of being an adult student. The interviews lasted about an hour. They were tape-recorded and later transcribed before being analysed in terms of the original research questions.

The structure of the report

The emphasis of the report is on what further and higher education institutions can do to help adult students succeed in their courses. We stress the need for:

- good pre-entry guidance to match students' knowledge and abilities with course requirements
- academic support such as revision classes, good quality written materials and positive teacher-student relationships to promote learning
- guidance provision which is sensitive to adults' problems
- careers advice which covers continuing education as well as labour market opportunities.

Chapters 2 – 4 describe why these kinds of provision are needed by reporting students' views on their experiences of being an adult student and staff views on the kind of support students need.

Research shows that most adult students on degree courses succeed as well as, if not better than, young students (Woodley 1984). However, some adult students either fail examinations or do not complete their courses. Chapter 5 reports the views of those who were not successful and considers whether providers could have prevented these outcomes. Chapter 6 provides a checklist of good practice in institutional provision. It summarises the main factors which help adults cope on courses and suggests areas which providers might review if they wish to improve the quality of their provision to adult students.

Our approach has been to illustrate common themes and concerns arising from students on the eight case-study courses, rather than overwhelm the reader with detail of staff and students' accounts of each course. (Brief descriptive details of each course are provided in Appendix A and sample details in Appendix B.) Nor have we compared and contrasted provision with the aim of rank ordering institutions. All colleges and universities work within their own particular contexts with their own histories and traditions. What works in one institution, or indeed in one faculty or teaching group would not necessarily work in another. We hope that by providing a checklist of adult students' problems and of the kinds of support they found effective, we will encourage staff at all levels to review their provision, whether in terms of guidance systems, in-service training, course design or teaching methods. It is only if staff are committed to the need for review and development and are adequately resourced that worthwhile and lasting change will come about.

Adult students are the focus of this report. However, we suspect that many of the problems and concerns they identify, are shared by younger students. The far-reaching changes in tertiary education now taking place provide one kind of stimulus to reviewing provision. We hope the views of adult students, largely enthusiastic, committed and appreciative, about how their experience could be improved, will provide another.

2 Previous subject knowledge

In this chapter we report the views of staff and students on whether previous subject knowledge was important in helping students cope with their courses. Difficulties in matching students and courses are highlighted and the implicationns for guidance provision are discussed.

The eight courses studied varied in their entry requirements reflecting, to some extent, the level at which they were offered. The non-advanced courses in further education colleges typically had no entry requirements, while advanced courses in FE and HE usually stipulated pre-entry qualifications. All the institutions said they were flexible about entry requirements in the case of adult students and took recent relevant experience in, for example, the engineering industry, into account in their admission of adult students on certain courses. Table 2.1 gives details of the entry requirements for the eight courses.

Table 2.1: Entry requirements for the case-study courses

Institution	Name of Course	Entry Requirements
FE College	Higher Physics 'O' Grade Physics	None
FE College	Science Access	'O' Grade Maths or equivalent
FE College	G2/G3 Maths by open learning	None
FE College	HND and HNC Electrical/Electronic Engineering	NC modules; or ONC/D; Highers
CI	BEng (part-time)	HND or equivalent
Open University	Maths in Computing/Maths Models, Fundamentals of Computing	None – but foundation course advised
University	Science Access	None
CI	BSc Engineering Systems	HNC/D, ONC/D, Highers, Modules
CI	HNC Mechanical Engineering	Highers, NCs, work experience
CI	MSc Electrical Engineering	Degree, HND, industrial experience

Even where no formal entry requirements were stipulated, tutors tried to point out to students the benefits of previous knowledge in the subject or in a related one. Thus the importance of qualifications in mathematics was highlighted on the physics courses. Similarly the Open University advised students to become familiar with basic concepts in mathematics through foundation level courses before embarking on more demanding levels. Tutors could not force students to take their advice, of course, and students who insisted that they wanted to 'give it a try' usually were accommodated in non-advanced courses, although as we shall see below, they did not always make the grade. Tutors are in a difficult position. They want to build on a student's interest and enthusiasm and sometimes unlikely students obtain the sought-after qualification. On the other hand, a student who is floundering academically may be put off returning to study by one bad experience. Even more starkly, an adult,giving up employment to return to full-time study, needs to be confident that there is a good match between the course and his or her existing knowledge and skills. This was summed up by a college tutor on an HND Engineering course:

> Occasionally I see some mature students who have been allowed onto courses and it's not for their own good. I'm becoming increasingly aware of the need to stop people, for their own good, because of the strain and problems people with little hope of success can experience.

However, as Table 2.2 shows, the students generally were well qualified.

Table 2.2: Student entry qualifications (highest given)

Qualification	Course								
	BEng	Adv. Eng.	OU Maths	Univ. Access	SCE Physics	FE Access	HND/C Eng.	National Certificate Modules	Totals
	N=16	N=12	N=13	N=14	N=7	N=17	N=11	N=17	N=107
Degree	–	–	2	–	1	–	1	–	4
Professional	–	–	-	2	1	–	–	–	3
HNC/D	15	3	5	-	1	–	1	1	26
Highers	1	4	5	8	2	9	3	3	35
ONC/D or equivalent	–	2	1	–	–	2	2	5	12
> 5 'O' Grades	–	3	–	3	2	3	2	1	14
1–4 'O' Grades	–	–	–	–	–	3	2	4	9
Apprenticeship	–	–	–	–	–	–	–	–	–
Other	–	–	–	–	–	–	–	–	–
None	–	–	–	1	–	–	–	3	4

It can be seen that only four students had no qualifications while well over half had qualifications at Highers level or above. This highlights a point we make in more detail below that entry qualifications are difficult to correlate unambiguously with success on tertiary level courses. There are so many factors affecting success that a concentration only on entry requirements is misleading.

The need for a good match between student and course seems self-evident and yet it is by no means easy for either college or student to achieve. The complexity of factors affecting learning, the difficulty in specifying precisely what students need to know before embarking on a course, to say nothing about the institutional climate which students enter all make matching students and courses a difficult business. The opportunity to discuss a student's motivation, previous knowledge and personal circumstances seems especially important for adult students who may be making considerable personal and financial sacrifices in returning to study. Such face-to-face consultation with a skilled tutor allows more thorough exploration of options than even the best produced brochure or prospectus.

Access courses are in the fortunate position of being able to invest time and other resources in guidance. Tutors in this study and in other studies believed this was a vital part of access provision. Time spent in exploring students' previous knowledge, skills, career plans and so on, enabled courses and students to be well-matched in the opinion of tutors. For example, tutors tried to steer students whom they thought would have severe academic problems with the access course onto pre-access and it is noteworthy, if unsurprising, that considerable attention was paid to students' previous qualifications. A case-study of science access students currently in progress shows that they tend to have 3–5 'O' grades, with many having 2–3 Highers (Munn et al, 1991). Naturally enough, tutors believed that previous subject knowledge was important in helping adult students cope. What did the students say?

Student views on subject knowledge

Student views were collected through semi-structured interviews covering areas such as their motivation for doing the course, their experience to date and future intentions. They were not asked a specific question about the importance of subject specific background knowledge. Instead, they were asked in an open way about what helped them to cope. Table 2.3 is noteworthy, therefore, in that unprompted about two-thirds of students on advanced courses either mentioned background knowledge as helpful or lamented its absence. A smaller fraction, less than half mentioned it in non-advanced courses.

Table 2.3: *Number of students who felt background knowledge was important*

	Number of students
Advanced courses (N = 52)	
CI1 — Advanced engineering (12)	8
CI2 — BEng (16)	15
FE4 — HNC/HND Engineering (11)	9
OU — Degree units (13)	2
Total	34
Non-advanced courses (N = 55)	
FE1 — SCE Physics (7)	4
FE2 — Access (17)	5
University — Access (14)	6
FE3 — NC modules (17)	5
Total	20

It was to be expected that background knowledge would be seen as important for advanced courses, but there are some surprises. It seems that background knowledge in advanced level engineering courses is regarded as very important by the overwhelming majority of adult students. In mathematics, in contrast, the Open University students gave it far less prominence, only two students mentioned it.

Reactions from students on non-advanced courses are also surprising. Physics stands out as requiring background knowledge, yet the FE access course which stipulated the equivalent of 'O' grade maths for entry, was not seen by most students as requiring background knowledge. However, it is noteworthy that students taking courses designed for those with no background placed importance on prior experience. So, for instance, National Certificate maths module students who had taken arithmetic or maths at school saw this as advantageous. The reverse was also true: students saw it as a disadvantage if they were unfamiliar with the subject. This is highlighted by one of the FE access students who withdrew from the course because of difficulties she was having with the physics module. It was a subject which she had not studied before and she felt that she was totally unable to come to grips with it.

Why did some students taking courses designed for those with no prior experience nevertheless value having previous knowledge? We can suggest two reasons. First, the two access courses were quite demanding and required that students assimilated a lot of information in a relatively short space of time. Anything which made this process easier was seen as an advantage. Indeed, although the FE access course was aimed at those with little or no background in the sciences, an 'O' grade or equivalent in

maths was stipulated as an entry requirement. Staff felt that, given the workload and the amount of unfamiliar material, those without such a background would be unable to cope. The second reason concerns the way in which adults tend to learn: they like to relate material to that which they already know (see eg Merriam and Cafarella, 1991; Cross, 1981; Knowles, 1980). In the social sciences, existing knowledge can derive from life experience. In the sciences, this tends not to be the case unless the students have a job or hobby in that field. Therefore, any familiarity with the subject matter, even if gained many years ago at school, is seen as a distinct advantage.

What were the particular advantages of having background knowledge? In the table below, we summarise staff and student views on this.

Table 2.4: Advantages of having background knowledge

Advantages	Disadvantages of no background knowledge
• Foundation on which to build	• Course may be pitched at a level which assumes some existing knowledge
• Familiarity with subject concepts	• Difficulties in dealing with scientific and mathematical concepts (eg how to conceptualise electricity)
• Familiarity with scientific/mathematical ways of thinking and so able to deal with quantitative arguments	

Students stressed that having a foundation of knowledge of specific subject areas was immensely helpful. Mathematics tended to be mentioned most often. For instance, one student on the BEng said that he felt he was coping well because he had background knowledge in mathematics from degree level studies done in the Royal Navy, even though this was some time before his current course. Conversely, a student who felt she wasn't coping with the electronics component of the BEng said this was because she didn't have Higher maths. She wished she had done the Higher before starting the degree. This student had no previous knowledge of electronics and found this part of the degree 'a nightmare'. Interestingly enough, six students on this degree specifically mentioned lack of mathematical knowledge as a handicap, while three students who had Higher maths or qualifications above this level mentioned the advantages of this foundation on which to build degree level work. This view was echoed by staff. The following comment is typical of staff teaching advanced level courses:

> Unless adult students have some academic qualifications in this area [mathematics] and come back [to it] with some positive experience it is very unlikely they'll succeed.

Students needed a general foundation then, on which to build. A particular aspect of this foundation was a familiarity with basic concepts. Students

mentioned how difficult it was to come to grips with abstract knowledge about electricity, for instance, or about energy which was difficult to make concrete. This was summed up by a student talking about trying to understand electricity.

> I think the big thing was you were dealing with electricity, trying to come to terms with this. ... It's not like banking or accounting where you can see what's going on. You're dealing with something you can't see — the fundamentals. Once you've picked them up, that's half the battle. ... Previous knowledge is invaluable.
>
> (Male FE student, HND Engineering)

Students in all courses, but particularly advanced level courses, saw subject specific background knowledge as an advantage or mentioned the lack of it as a distinct disadvantage. Our data also suggested that the length of time since that knowledge had been acquired was important. In general, we found the more recent the knowledge the better. This is illustrated by two of the Higher Physics students. Both had 'O' Grades in the subject. However, while one had acquired this immediately prior to taking the Higher, the other had gained it more than five years earlier. The former passed the Higher; the latter failed.

There seemed to be three main reasons why recency was an advantage. First, and most obvious, it meant that concepts and ideas were fresh in students' minds and they did not have to spend time familiarising themselves with them. Second, recent study of the area had allowed students to become familiar with any changes in terminology or curriculum which had taken place. And third, the adults were familiar with the way in which these types of courses were taught and, thus, did not have to spend time acclimatising themselves to being a student.

Although we found recent relevant experience to be an advantage, there were also benefits in having studied the subject at all, however, many years earlier. Some of the students talked of feeling comfortable with a subject because it was familiar from school. For instance, three of the National Certificate maths module students said that they had enjoyed working with numbers at school and that this had helped them to feel confident about tackling the course. However, previous school experience of the subject could also have the opposite effect: several of the students on that course had had trouble with arithmetic or maths at school and, consequently, were apprehensive about their mathematical ability.

The most worrying point raised in Table 2.4 is that students felt disadvantaged by a lack of background knowledge because courses were sometimes pitched at a level which assumed some prior knowledge. This had not been expected by those without this background experience and they felt overwhelmed when material was introduced which was at too high a level. This is illustrated by one of the HND Engineering students whose entry qualifications consisted of 'a few modules' from a computing course which he had not completed.

> There was a lot of things that were taken for granted ... a few basic things about electronics that the lecturers took for granted that you should have known but you'd never come across these things before. Things were mentioned and it wasn't until six months later that you'd really appreciate what they were all about. I think they could have built up a wee bit easier.
>
> (Male FE student, HND Engineering)

It was not only on advanced level courses that this was perceived to be the case. One of the Higher Physics students, for instance, felt that the course assumed a level of background knowledge that he did not have. Staff on this course told us that some previous knowledge had to be assumed. They felt that, given the level and the time-scale of the course, it was reasonable to expect that someone doing the Higher had covered the 'O' grade syllabus and so had a foundation in physics and maths. One can understand this point of view: every course cannot start with basics. However, that student realised too late that he should have taken the 'O' grade first and felt strongly that he should have been advised of this. This highlights the importance of pre-entry advice. It is one of the topics considered as we discuss what course providers can do to try to ensure that students and courses are well matched.

Are initial entry qualifications a good predictor of success?

Entwistle and Wilson (1977) report that in sciences, and particularly in mathematics and engineering, there is a high correlation (up to 0.56) between entry qualifications and subsequent academic performance. However, as Entwistle et al (1988) point out 'A problem in relying on correlational methods is that they cannot take account of non-linear relationships or complex interactions between variables and yet these certainly exist' (p5). Furthermore, entry qualifications tell us little either about the specific knowledge learned — for example there are various options in Higher physics — or how deep an understanding has been gained. Taken together with all the other factors which are known to affect performance, such as motivation, study skills and a range of personal characteristics, it was not surprising that there was no clear correlation between the entry qualifications possessed by our sample and their subsequent success. We were also unable to detect any pattern between students' perceptions of being able to cope and their previous qualifications. Students on the same course who possessed what appeared to be very similar qualifications differed in their views on whether they had sufficient background knowledge to equip them for the course. However, we are not specialists in engineering and science and so it was very difficult for us to know what previous knowledge would be most relevant for each subject. As mentioned above, a single qualification such as Higher physics can mask different content areas and we had no measure of students' factual or conceptual understanding of subject content.

We tried a second approach to look at any relationship between previous subject knowledge and ability to cope. We investigated what students who had failed or withdrawn from courses had to say about background knowledge. We report our findings in a little more detail in Chapter 5. For the moment, the important point is that some of these students highlighted lack of background knowledge as a problem, others did not. No clear pattern emerged. Again, we stress that research on teaching and learning reveals the interaction of many factors contributing to success or failure. Adult students just as younger students have to cope with many challenges in tertiary education. There is no quick fix to ensure success for all. However, our data suggested that there were things which providers could do to minimise a mis-match between students and courses.

What can providers do?

Ensuring a good fit between students and courses is obviously of prime importance both for customer satisfaction and institutional reputation. In this section, we look at two ways in which providers can try to tackle this: by providing good pre-entry guidance, and by being responsive in the delivery of courses.

Pre-entry guidance

What did students and staff feel should be included in pre-entry guidance? Table 2.5 shows the main features.

Table 2.5: What should be included in pre-entry guidance?

- The subjects to be covered – with a comprehensive description of each along with information on the depth of coverage
- An exploration of the suitability of the course (or year, if seeking direct entry to the second year) in relation to an applicant's:
  - (a) background experience – science, maths and previous study
  - (b) goals/aims
- Entry qualifications or previous experience needed and an idea of whom the course is intended for
- A discussion of the workload (teaching hours, practicals, home-study) and how it would fit in with the applicant's other commitments
- The type and frequency of assessments
- Lists of recommended reading (pre-course and course texts)
- A staff contact name and phone number in case applicants want further information.
- Term dates
- Costs
- Career counselling (subsequent employment and educational options)
- Information about alternatives (subject, level, mode) for those for whom the course is not suitable
- The opportunity to talk to or contact current/past students

As can be seen from the above table, adults tended to want a lot of information at the pre-entry stage. Obviously, providers have a delicate balance to maintain between giving sufficient information and overloading applicants with detail. However, we found that none of the students complained about receiving too much information: instead, many were disappointed with the brevity and superficiality of such guidance.

In order to ensure that a course is appropriate for a student, we would suggest that it is vital that staff try to assess the level of the applicant's background knowledge and its applicability to the course. As we pointed out earlier, this is not an easy thing to do. However, it certainly is not something which the applicants themselves are in a good position to decide: they are not likely to be able to assess how good a foundation their existing experience will provide. It is similarly important for it to be made clear whether some facility with mathematics is required. The further education access course, for example, stipulated that applicants should have an entry qualification, or be able to demonstrate appropriate competence, in mathematics. The Higher Physics course leader was considering introducing the same requirement:

> The principal problem we get when mature students come to us is that so many ... seem to lack sufficient mathematics to cope adequately with the physics. We've actually thought of putting some kind of entrance criterion saying 'before you do the 'O' grade or Higher Physics, you've got to be doing concurrent mathematics or have done a suitable mathematics course' ... I know this is reflected in other courses in the college, such as engineering. Staff talk about how much difficulty mature students, and some young students, seem to have coming in without a good grounding in mathematics.
>
> (FE course leader, SCE Physics)

While we would not suggest that departments adopt rigid entry requirements, we do believe that there is a good argument for staff making it clear to applicants what skills or level of background knowledge will be required. This would inform applicants that the course would be starting from the assumption that some background knowledge was necessary and would provide a basis for discussion and negotiation during the pre-entry interview.

It is worth drawing attention to one of the items in this list which, at first sight, might appear inappropriate: the desire for guidance on subsequent vocational and educational options. As we will see in Chapter 4, the adults tended to be strongly vocationally motivated and have clear vocational goals; it is vitally important, therefore that at an early stage they find out whether their intended course is appropriate to their goal. We found a few cases where students had embarked on courses which were not going to qualify them for the employment they wanted. One man, for example, who had got direct entry into the second year of the BSc Engineering Systems, had wrongly believed that he could do an Ordinary degree, followed by a part-time postgraduate course and then go into offshore

engineering. Two terms into the course he had found out that this would not be possible – he would have to do the Honours course. He was very dispirited by this because the prospect of another two years on the course did not appeal. If he had been able to discuss this at the pre-entry stage, he would have been able to make the decision about whether this was the appropriate course for him.

What form should pre-entry guidance take?

In what form should pre-entry information be given – should, for instance, all students receive a face-to-face interview or could the material be passed on by other means? The advantage of having a policy of face-to-face interviews was that it was a way of trying to ensure that all students actually received pre-entry guidance. However, face-to-face contact was not vital – what mattered was the quality and depth of the guidance given. So, for example, the form that pre-entry guidance took differed among the Open University students: some had face-to-face contact, some telephone contact and yet others relied on written information. Yet, they were satisfied with the guidance they received because it was detailed enough to provide them with the information they needed. This does not mean that we are advocating that all pre-entry guidance be carried out via the written word! Obviously, personal contact – whether face-to-face or over the telephone – has the advantage of being interactive as well as being personalised for each student. We are suggesting that written material could be improved so that it contains more of the factual information that students are seeking.

Good quality pre-entry guidance for all?

Is it possible to give all students – regardless of course or mode of study – the same quality of pre-entry guidance? We were particularly interested in part-time and open learning students' experience. Part-time students were more likely than full-timers to have received guidance over the telephone rather than face-to-face, but this did not seem to affect satisfaction with the guidance received. Instead, satisfaction tended to be high for students taking courses which were specifically designed for adults. The access and the Open University students were much more likely to say that the guidance they had received had been in-depth, addressed their personal needs and was useful. This is hardly surprising since guidance at all stages tended to be an integral part of the design of these courses.

In contrast, students on 'mainstream' courses, particularly in the two Central Institution and the SCE evening class case-studies, were far more critical. Over half of the students in each of the two Central Institution case-studies were unhappy with the guidance. They felt that they should have been given more information on the subjects to be covered in their courses as well as on the depth of coverage. The reason for this level of dissatisfaction is not immediately apparent and it contrasts with the further education HNC/D Engineering courses case-study. On the latter, the vast majority of students were content with their pre-entry guidance. Perhaps the reason for this difference lies in the institution. Modular

programmes mean that further education colleges have become used to providing guidance and perhaps this has permeated to other courses. However, if this is true, the provision of such guidance did not seem to have reached evening class students. We found that only two of the seven SCE evening class students had received pre-entry guidance and, not unexpectedly therefore, the others were unhappy about this. In particular, they would have liked information about the appropriateness for them of the course. This is illustrated by one of the Higher Physics students:

> I think I would have been better doing the 'O' Grade first rather than the Higher. That was my own choice, but perhaps there should have been some advice then about how well suited the Higher was for me ... advice on what the Higher would have entailed and whether it was the course I should have done at that time.
>
> (Male FE student, Higher Physics)

This student ultimately failed the Higher and his case illustrates the importance of students – no matter what course they are doing – receiving pre-entry guidance. We appreciate that it is very difficult to make time to see all evening class students and to provide pre-entry guidance for them. It is also costly. However, as we have already described, students did not mind receiving guidance over the telephone. This would be a cost-effective method and would also mean that the availability of such guidance need not be restricted to the evenings: instead, it would be possible to provide it during the day when more staff were available.

So far, we have looked at ways of trying to match students and courses before enrolment. But how can a lecturer deal most appropriately with a class of students who have varying levels of background knowledge? One method suggested by our sample is to be responsive to the needs of different students. Of course, this is easier said than done, and problems of effective differentiation, individualised learning and diagnostic assessment are well known. Nor is it easy for tutors to change their normal classroom practice. Nevertheless, it is interesting to note the essentially straightforward approaches which were highlighted by staff and students as ways of being respsonsive to student needs.

Responsiveness

There were a number of ways in which our case-study staff were responsive to the needs of students were identified from interview data. These are shown in Table 2.6.

Table 2.6: Responsiveness in course delivery

- Pacing of content – a gradual increase in difficulty
- Pacing of content – student needs rather than teacher needs being paramount (eg student centred rather than teacher-centred methods)
- Allowing the first few weeks of the course to serve as a foundation so that staff and students could see where they were
- Encouraging student success at the beginning of the course so that confidence was developed
- Using feedback from students to inform/change course design

Why were these effective in dealing with a group of students who had differing backgrounds? The simple answer is that such methods derive from the premise that although every adult is unique, starts from a different base and works at a different pace, they all share the common need to have their confidence in their ability to cope reinforced. By easing adults into course content, encouraging early success and thus building confidence, it was thought possible to overcome the disadvantage of no previous subject background or of several years away from study. One of the lecturers described it thus:

> I don't think it is really true to say that mature students are less able to cope with [science and engineering] subjects. I think the main problem is their past experience and the time elapsed since they did it. In our experience, they are as capable in dealing with maths and physics as younger students. They show the same general range of abilities as you would expect with a younger group. It boils down to confidence. Once they begin to develop confidence, they begin to motor ... We do try, in fact, not to hit them hard at first, but to gradually accelerate. That helps in maths, physics and chemistry and, as their confidence builds, they get better and quicker and more accurate.
>
> (FE course leader, science/ engineering access)

It was possible to intensify content gradually on advanced courses too. For instance, on the BEng Engineering, the first eight weeks took the form of a short foundation course. This served three purposes. First, it provided all students with a common grounding. Second, it meant that for those initial eight weeks students were covering material with which they were familiar or which was easily within their understanding. And third, it helped the staff to assess the type and level of students' existing knowledge.

We found that responsiveness to adults' needs was valued by both students and staff and tended to be incorporated into many of the courses. There were a few in which it was not – most notably the SCE Physics courses. We know that this was not because the staff on those courses were unaware of the needs of adults – indeed, such needs had been taken

on board in other courses, such as the part-time access course, provided by that department. It was interesting that this had not been carried over into the SCE Physics. The tutor's explanation was that there was a lot of material to get through and, in order to give students a good chance of answering the questions in the physics examination paper, he had to cover as much of the syllabus as possible. Although this is understandable, it does seem rather bizarre to place more importance on getting through the material than on ensuring that adults are being properly catered for. Perhaps now is the time for providers to question whether SCE evening classes are really being taught in the most appropriate way for adults and to consider whether what has been learned in other areas of college provision can be applied to such courses.

Summary

In this chapter, we saw that science, engineering and mathematics students believed that it was an advantage to have previous background knowledge. This was because such subjects tend to be viewed as hierarchical in nature and it was therefore important to have a foundation on which to build. In addition, students felt that staff often wrongly assume that they possessed this background knowledge and so introduced material which was unfamiliar and at too difficult a level.

This raised the problem of what providers could do to try to ensure a good fit between students and courses. We suggested two ways in which this could be tackled, irrespective of level or mode of course. The first was by using pre-entry guidance to match students with the most appropriate courses. Such guidance was at its most effective if it was both interactive and personalised for each individual applicant. The second suggestion was concerned with dealing most appropriately with a class of students who had varying levels of background knowledge. This involved being responsive in course delivery so that it was taught and paced in such a way that students' confidence in their ability to cope was reinforced.

Let us now look at the second factor which helped students to cope – being able to learn the subject content.

3 Learning subject content

The motives of adult students can vary. There may be those with a definite interest in the subject, perhaps because it is a hobby or because they want to gain employment in that field. There may be others who have little interest in the topic but have had to take the course because it is an entry requirement for a subsequent one. However, whatever their motives, adult students all share one common aim – to learn, and in most cases this also means to understand, the subject content.

It seems facile to say that coping on a course is related to being able to learn the subject content – this appears self-evident. What is perhaps less obvious is what it is that providers can do to help adults to learn the content. This is the issue addressed in this chapter.

What can providers do?

The most frequent way in which the institutions in our case studies supported students was by providing what we have called 'learning support'. This typically covered five main areas. These were:

- tutor support
- assessment
- supplementary or remedial support
- study skills
- student self-help

Tutor support

Obviously, tutors play the major role in the provision of learning support – it is they who have greatest contact with students. But what were the main features of this support which made it effective? These are summarised in Table 3.1.

***Table 3.1:** Effective tutor support*

• Tutors being approachable and helpful
• The development of staff-student rapport being an explicit part of the course design
• Tutors treating mature students as equals
• Tutors displaying a genuine interest in the students
• Well designedmaterials being readily available for those courses on which tutor contact is limited (eg open learning and part-time courses)

Encouraging students to seek help

Not surprisingly, staff-student rapport was the pivot on which effective tutor support rested: if such rapport had been established then adults were much more likely to approach staff when experiencing difficulties. Across the case-studies, we found that tutors were generally viewed as helpful and supportive and this was something which the staff deliberately tried to cultivate. Staff-student rapport had been most successful on the two access courses, perhaps because the development of such a rapport had been an explicit part of course design. What was it that staff did which was so successful? This question is not easy to answer because 'rapport' is such an intangible concept; but it is possible to give examples of the type of activities which helped to establish rapport. These examples are taken from the part-time university access course.

Table 3.2: Ways in which good staff-student relationships were encouraged

- Students were encouraged to arrive early for classes so that they could chat informally with tutors and discuss problems
- Classes were allowed to run on late so that students could ask questions or could work through areas for which there had not been time during the lesson
- Staff and students took coffee breaks together
- Tutors gave students their departmental (and sometimes home) phone numbers to encourage them to call if they were experiencing difficulties
- Three tutors being present in one of the subjects – one to 'lead' the class and the other two to assist students and answer questions
- If students missed lectures, staff would send out lecture notes to them

All of these served to make the students feel valued and signalled that staff had a personal interest in students' well-being. As one of the lecturers put it: 'you have to get involved, can't just show up, give a lecture and push off'. The importance of this is emphasised by the much more marked reluctance among non-access students to draw attention to the fact that they had a problem. As a result, tutors of such students often felt that, unless there were objective grounds for intervention – such as deteriorating assessment marks or the students asking for help – it was difficult or awkward to raise it themselves. It is vital, therefore, that the type of relationship established with adults is one in which the students feel secure enough to admit to not understanding material.

Courses with little staff-student contact

Tutors – particularly those on part-time or open learning courses – might feel that, although they know that establishing rapport is important, limited contact time means that they simply do not have the opportunity

to develop this to the full. However, as we have seen from the university access course, it is possible even on part-time courses to do so. Is there anything else that could be done by tutors to support students on courses where face-to-face contact is limited? Our data suggested three ways in which tutors could help such students: ensuring that there is some face-to-face contact; taking a more proactive approach to contacting students; and ensuring that course materials are appropriate. Let us look at these in a little more detail.

As already pointed out, students on most of the courses showed a reluctance to draw attention to difficulties they were having. This was exacerbated, however, on the open learning courses because lack of regular contact time provided few opportunities to raise learning difficulties. Staff did their best to encourage students to telephone if they had any problems but students, particularly those on the National Certificate Maths modules courses, seemed reluctant to do so:

> I feel I was left on my own, although having said that, I did have a contact [telephone] number I could have used. But I didn't really want to 'phone. Instead, I relied on my husband ... and there were nights when I felt I had to ask my husband to stop what he was doing to help me and there were nights when I just didn't feel like the hassle of doing that.
>
> (Female FE student, National Certificate G3 Mathematics)

Other students on the same course said that they would have liked some tutorial time to have been built into the course; such time was certainly appreciated by the Open University participants. Students and staff on both courses felt that telephone tutorials were of limited use in mathematics because students needed to see the way in which calculations were done. However, the Open University staff thought that such tutorials could work well if the student and tutor had looked into the problem in advance and then used the telephone to discuss their ideas.

A second way in which open learning students could be helped would be for tutors to telephone them regularly to see how they were getting on. This would provide students with the opening to discuss problems and would engender the feeling that staff were genuinely interested in them.

The third way in which tutors can provide support is by ensuring that written material is readily available and of good quality. While this seems obvious for open learning courses, we found that some part-time students, most notably those taking the BEng Engineering, expressed similar needs. This undoubtedly is because contact time with such students is limited and so independent study becomes the prime method for learning content. The students, therefore, come to rely heavily on written course units, notes distributed by lecturers and set texts. If these are of poor quality, give insufficient explanation or are not available, then students can get into difficulties, become demotivated and perhaps even withdraw from the course.

Trying to establish rapport and encouraging students to come forward with problems is one method of ensuring that help is available. Using assessment to identify areas of strength and weakness is another.

Assessment

Even on courses where students were reluctant to admit to difficulties, staff were able to support students by using assessment to monitor how well they were coping. What kind of assessment was used? In each of the higher education courses, there was a mixture of continuous assessment and end of year exams. In the further education case-studies, there were differences between the courses in the form that assessment took. On the access and open learning courses, continuous assessment was used whereas on the SCE course passing or failing depended on end of year exams. The HNC/HND Engineering courses used a mixture of the two. However, whatever method of assessment was used to decide which students passed or failed, all of the courses included formative assessment. What did students see useful assessment as being?

Table 3.3: Useful assessment

Useful assessment is that which:
• Gives frequent and regular feedback on performance
• Aids retention
• Highlights the things which have been done well
• Contains detailed comments and constructive criticism
• [Where there are final exams] provides practice for them

In general, continuous assessment was favoured by the adults because it provided them with regular feedback, let them see how well they were doing and showed them the parts on which they needed to work further. It was also seen as 'less threatening' than end of year examinations. However, on courses where students were taking a large number of different subjects or modules, there were mixed feelings about continuous assessment. While they tended to appreciate the formative nature of such assessment, the adults expressed concern about the large number which they had to do and about whether they really aided retention and understanding of the material:

> I certainly don't think I retained a whole lot of it ... in modules, you only have to retain the stuff you get for five minutes or so for the assessment and then you forget about it because you've got so much getting thrown at you ... there's no real sort of need to maintain any sort of long-term knowledge or, even a lot of the time, you don't even need to understand it – you just learn it parrot fashion.
>
> (Female FE student, science/engineering access)

Those taking open learning courses had rather different concerns. Because this was their main method of contact with teaching staff, the quality of comments and speed of return of assessments were very important. They felt that there was a danger that, if it took a while to receive feedback, then they would have moved on to a different topic and have forgotten the previous one.

Overall, students believed that assessment was not always being used across the institutions as effectively as it could be. Students sometimes felt that they were receiving feedback that was either too late or was unconstructive. Instead, they wanted regular assessment which highlighted the areas in which they were having difficulty and which suggested how they might make improvements. They also wanted assessment which helped them to retain material because, for most of the adults despite their strong vocational motive, 'passing' was not their key concern – understanding was.

Formative assessment is not an end in itself. It is a way of finding out whether students are having difficulties. What additional help was available, therefore, for those whom the assessment had shown were struggling?

Supplementary and remedial help

On all of the courses, there was some form of supplementary or remedial support. Table 3.4 shows the main forms that this could take.

Table 3.4: Forms of supplementary and remedial help

- Regular voluntary 'drop-in' classes
- Additional practical exercises, along with written solutions, ideal answers and model responses
- Written self-help teaching packages

Most commonly, formal supplementary support took the form of a regular time set aside when students could 'drop-in' if they were experiencing problems. Sometimes these would be used for remediation, sometimes for revision. For some students, however, this opportunity was either not available or was at a time which was inconvenient. For example, although there was a 'drop-in' facility for SCE Physics students, it was provided during the day and so evening class participants with day-time commitments were unable to make use of it. To overcome this problem, staff in that department had developed another way of helping students who were experiencing difficulties with the mathematical content of the physics course: they had produced a written 'mini programme' which provided students with the maths essential to the course.

The scope for providing different types of additional support on open learning courses was, of course, limited. Using the regular tutorial meeting to go over problems students were having was one of the solutions adopted by the Open University. This option was not available to staff responsible for the open learning National Certificate Maths module courses. Instead, they tended to assess each student's situation and circumstances individually and respond in a way to suit these. They might, therefore, provide telephone support, written material or try to arrange for tutor and student to meet. What was most important, however, was that students were aware that they could ask for extra help and that they did not feel that staff saw this as an imposition. Unfortunately, we found that students were very reluctant indeed to contact staff and that those with problems had not sought remedial help.

The provision of additional support was valued by students across the other courses. They appreciated having this option available and several did seem to make use of it. However, adults, particularly if they have been away from education for some time, may need not only additional help with subject content but also with getting back into the way of studying. We now look at the kind of study skills which adults felt were important.

Study skills

Being able to study effectively is not necessarily something which comes naturally. It may take students months to learn how to organise themselves and their work so that they are using their time efficiently and getting the most out of study. The adults we interviewed suggested six skills which they thought were particularly important. These are shown in Table 3.5.

Table 3.5: Important study skills

- Time management and self-discipline:
  - to help students make the most effective use of their time
- Note taking:
  - to ensure that information was in a summarised form for later revision
  - to help students clarify their ideas
- Continued practice with problem solving exercises:
  - to understand the methods and concepts
  - to develop a facility in problem solving
  - to find out why they were making errors
- Report and essay writing:
  - to present results and information concisely
  - to develop expertise in written presentations
- Examination techniques:
  - to become familiar with the standard required
  - to overcome fears about sitting examinations
- Using the library:
  - to learn to use the library correctly and efficiently

None of these is likely to come as a surprise to most teachers. What may be worrying, however, is that many of the students felt that they received little help with the development of such skills. Some said that staff seemed to assume that they started courses equipped with such skills; others talked about the prevalent notion being that, as time went on, such skills would be picked up in a sort of osmosis fashion. It is true that some of the adults – mainly those who had recent study experience either in that or an unrelated subject – did start their courses feeling confident in their ability to study. However, there were others, especially those who had been out of formal education and training for a while, who had difficulty in developing these skills. In some cases, they were several months into their courses before they felt that they were studying anywhere near effectively. On a one year course, this can mean that much valuable time has been lost.

The dilemma that staff face is how to provide study skills support. For instance, what form should it take? Should it be taught as part of a course in its own right or should it be integrated into ordinary subject teaching? We found that study skills was treated as a separate entity in four of the eight case-studies: the two access and two open learning courses. Both access courses provided separate classes on study skills although, on the university one, these were available before the access course proper started and were not attended by the majority of the students we interviewed. Study skills support on both of the open learning courses took the form of written packages on the types of skills that students would need.

Looking across all of the courses at the students' views on the best way in which to inculcate study skills, we discovered an interesting phenomenon: the value placed on explicit study skills support tended to be inversely related to whether it had been received. Most who had received explicit study skills support tended not to value it highly – instead, they felt that everyone had their own way of studying and that it was something which could not be taught. Whether this is true is debatable but it was certainly the majority view of these students. Perhaps these students would respond positively to a study skills course which was interwoven with subject content such as is currently being developed on some access courses. In contrast, those who had received no formal tuition in study skills were more likely to say that they would have appreciated some support. For example, one of the university access students who had not taken part in the initial study skills weekend, felt that at the end of the course she still lacked writing skills. Because of this, she was going to enrol on a short study skills course over the summer. At first sight, it seems very strange that a student who had finished an access course was about to take one in study skills. But we believe it highlights the dilemma faced by access courses in general. With so little time and so much to teach (both content and study skills) it is inevitable that some things will be excluded. Students also come with the belief that learning is difficult and requires effort. Such effort is up to themselves.

This divergence of views among students as to the best way in which they can be helped to develop study skills, makes it very difficult for providers to know which is the best approach to take. However, no matter whether one takes the view that study skills should be taught separately or that they should be integrated into course work. what does seem apparent is that students could be given more guidelines in some of the six important areas. Taking report and essay writing as an example, we found some students who were experiencing great difficulty because they had little idea of the way in which these should be set out and the amount of detail required. A short hand-out containing guidelines for writing reports is a fairly simple, yet extremely helpful thing to produce. Similarly, providing model answers – both to essay and problem solving questions – would give students an idea of the standard required as well as the way in which such exercises were set out. It seems to us important that adults should not have to waste valuable time developing the skills and confidence to study when there are simple things which may help to give them a head start.

Student self-help

Staff were not the only source of help for adults. Apart from family, friends and work colleagues, an important source of advice and support was other students. While this often happened informally on all of the courses, it was something which was more actively fostered by staff on the access and open learning courses. It was interesting, however, that it was more successful on the former than latter courses.

On both the further education and higher education access courses, staff had engendered group cohesion by encouraging students to help one another. For instance, on the university course, tutors distributed lists which contained the names and addresses of class members. Students on both of these courses told us about how well they all got on together and how much they helped each other.

Unfortunately, the attempts to encourage self-help groups among the open learning students had been less successful. Although class lists were similarly distributed, students were much more reluctant to use them. It seems likely that there were two reasons for this reticence: doubts about the value of getting advice about mathematical problems over the telephone; and an unwillingness to contact someone whom they had not met or whom they only vaguely knew.

It seems a pity that institutions have not placed more emphasis on student self-help because it seems to have several advantages. First, adults often feel less inhibited about discussing their problems with their peers rather than with staff. Second, helping someone else with their work is a very good way of testing one's own grasp and understanding of the material. And third, students are able to contact each other as and when they come across problems rather than having to wait until their next class.

Summary

Five ways in which providers could help adults to learn subject content were discussed in this chapter. These were by providing tutor support; using assessment effectively; offering supplementary support; helping to inculcate study skills; and encouraging self-help among the students. However, underpinning the whole process of helping adults to learn was the concept of a good relationship between staff and students. Where such a relationship exists, the adults were far more likely to approach staff to seek the help they needed.

4 Personal factors

Academic and course-related factors are not the only ones affecting ability to cope: personal qualities and circumstances are also important. Adults do not undertake their courses in a vacuum. To a much greater extent than youngsters, they have existing work, financial or domestic commitments. As a result, they are likely to have given considerable thought to the implications for their lives of embarking on a course. Those who do go on to take on this kind of commitment, therefore, tend to be highly motivated and to have made sure that their lives are fairly well organised. In this chapter, we focus on the personal factors which influence how students cope and we also highlight what institutions can do to help.

We found that there were two factors which particularly affected students' ability to cope. These were:

- motivation
- personal circumstances

We now look at each in more detail.

Motivation

Among our students, we found that there were three main, although overlapping, motives for taking courses. These are shown below.

Table 4.1: Motives for taking courses

- Vocational:
  - to change career direction (eg to retrain from barman to electronic engineer)
  - to gain advancement in current vocational area (eg to gain chartered engineering status)
  - required to do course by current employer (eg in order for workplace to become an accredited training unit, staff must possess certain minimum qualifications in mathematics)
- Academic:
  - to gain entry to a related course (eg taking a science access course as entry qualification for degree in health science)
  - to gain entry to an unrelated course (eg taking mathematics module as an entry qualification for a primary teaching course)
- Personal interest and development:
  - to find out more about the subject
  - to get one's brain working
  - to undertake a challenge
  - to prove something to oneself and others

There are five points we would like to make about the motivation of the adults in our study. First, students often gave reasons which fell into more

than one category. For example, the immediate aim of many of the access students was academic: they wanted to gain entry to a subsequent course. However, their long-term aim was vocational: to improve their career prospects.

This leads on to our second point. Regardless of course or institution, vocational motives predominated. Indeed, the majority of students had a vocational plan. In some cases, this plan was well defined. It might, as in the case of the further education HNC Engineering students, involve taking only one course which it was hoped would lead directly to employment; or it might involve progression through a number of courses before reaching the vocational goal. This is illustrated by a HND Engineering student who had started off taking a 'taster' course at a Skill Centre and had enjoyed it so much that she had decided to aim for a career in electronic engineering. To reach this goal, she had done a one-year, full-time programme of National Certificate modules in electrical engineering before going on to the HND. In contrast, some students had a vocational plan which was much more vague. For example, one of the 'O' grade Physics students was working as a part-time laboratory technician. At present, the job suited her because the hours fitted in with her childcare commitments. However, she felt that when her children were older, she would want a more fulfilling career and that she should begin to plan for this. She was unsure about what career to aim for but, since she had background knowledge in science, wanted it to be something in this field. Her first step had been to take the 'O' grade Physics and she intended to take the Higher the following year. However, she was still unclear about where to go from there.

Thirdly, although vocational motives predominated, the desire for personal development was also important. Some of the students (particularly those on the HE open learning and access courses) had started off with a personal development motive but this had changed as time went on. For example, one of the Open University students had started the course as 'a challenge' but, gradually, had begun to think about trying to get a job which was related to the degree. This illustrates something of the complex inter-relationship between vocational and other motives and the way in which motivation can change over time.

Our fourth point is to stress the sense of enjoyment felt by the vast majority of the mature students. Even those who found it a 'hard slog' to get to grips with course material said that they had enjoyed the experience. In fact, overcoming problems often heightened the sense of achievement and satisfaction. One of the Open University students described it thus:

> There are always some aspects of the courses which you find difficult – you hit a brick wall. But that's part of the challenge – you get stuck, but after you've knocked the wall down and got past it, then you get enjoyment and a real sense of satisfaction from it. When coming across problems, it's a case of keeping going.
>
> (Male HE student, Mathematics degree)

Our last point concerns what staff saw as being the implication of adults being so highly motivated – it resulted in a very strong determination to succeed:

> You don't take on a commitment like this lightly. You know that if you're going to come to a place like [this] college, to do a course of further education full-time, it's going to cost you a lot of money and it's causing considerable hardships ... From my experience, you usually find mature students make a success of it – they have the motivation.
>
> (FE lecturer, HND Engineering)

Staff believed this determination led them to apply themselves tenaciously to their work. Such willingness to work hard was often seen by staff as helping to overcome the disadvantage of having been away from study for a number of years. Adults would seek out the information they did not know and would work at it until they were familiar with the material. As we have already seen from the above example of the Open University mathematics student, the prevailing attitude among the adults was that the course was not necessarily going to be easy but they were determined that it would not beat them.

Their desire to succeed and their commitment to the educational path which they had taken meant that the adults tended to have tried to anticipate and deal with the kinds of personal problems that might crop up. As a result, personal circumstances caused far fewer problems than might have been expected. The difficulties which did occur are discussed below. However, it is important first to stress that the adults who went on to take these courses were likely to be those who had found solutions to, or at least thought they could deal with, problems arising from personal circumstances. It seems probable that there are many other adults who, although they would like to take similar courses, are unable to do so because they cannot overcome these barriers.

Personal circumstances

The adults had expected that returning to education and training would involve having to make sacrifices and, in fact, the extent of their enthusiasm and commitment was evident from the way in which they tackled personal problems. These problems fell into three main categories:

- finance
- childcare and family commitments
- other time commitments

Each of these is discussed briefly below.

Finance

Not surprisingly, financial problems were stressed mainly by students on full-time courses. Students on part-time courses sometimes had their fees

paid by employers, at other times they funded themselves. Financial burdens for part-time students did not seem so pressing, particularly because they could often continue in full-time or almost full-time employment. This is not to say that part-time students did *not* have financial problems, merely that it was full-time students who most frequently and graphically discribed the financial problems they were experiencing.

All the full-time students were in receipt of SOED grants, Employment Training allowances or local authority bursaries. However, the amount of awards varied and many found it very difficult to make ends meet, particularly if they had been used to having a full-time salary.

We were told of a variety of financial problems which the students had. These included:

- difficulties in meeting mortgage payments
- trying to support a family on a very low income
- delays in receiving grant or bursary payments and having to borrow money until the payments came through
- grants and bursaries being assessed at too low a level, with the result that students spent weeks, and sometimes months, trying to get these changed
- problems with payments from the Department of Social Security.

Trying to solve these problems sometimes took up a lot of student's time and emotional energy. For example, one of the further education access students described the problems she had had when her bursary was assessed at too low a level. She had two young children to look after and was finding it extremely difficult to cope on so little money. She had spent a great deal of time phoning, writing to and calling at the Education Department. Eventually, with the help of college staff, her bursary was re-assessed.

Occasionally, students also found that they fell into the 'benefit trap'. One of the students, for instance, had been unemployed for a number of years before taking the course and he and his partner had been in receipt of income support for themselves and their two young children. However, he had been told that when he became a full-time student the income support for the family would be reduced by the equivalent of his grant. The family would, therefore, be worse off because he would have additional expenses for items such as books, travel and meals in college. In the end, he had to live separately from his family in order to avoid worsening their financial situation.

Another student talked of having to live off a grant which was half that of his previous salary. To compound this situation, he no longer received social security and family credit payments. He was finding it increasingly difficult to support his family of three children and had been forced to take on a part-time job four nights a week. This was obviously seriously cutting into his time both to study and with his family.

The above example illustrates the lengths to which the returners had had to go, either before or during the course, to try to minimise the effects of lack of money. Other strategies included selling their car, borrowing money from family and friends, giving up their own accommodation to move back in with parents, and taking one or more part-time jobs. Others had been very far-sighted. For instance, before starting his course, one of the HND Engineering students had arranged with his building society that he could defer his mortgage payments for the first six months of the course. Another student on that course had taken a job as a night-time petrol pump assistant which involved longish periods in which there was little to do. He was able to study during these times of inactivity and thus be paid while reading his textbooks!

In general, then, the full-time students had expected to have financial difficulties and had developed strategies for trying to cope with them. This does not mean that life was not a struggle for many – but it was a struggle which they were willing to put up with and which they tried to prevent from affecting their academic performance. They did, however, still worry about it and the hardship through which they were putting their children:

> My mum and dad send money every month – if we hadn't had that, we wouldn't have been able to survive – you've got to eat and you've got to dress half decently ... [But] you're constantly worried in case anything breaks down – if the washing machine cracks up, what are we going to do? You never ... take the kids anywhere, holidays. You feel guilty sometimes, not being able to do anything.
>
> (Female FE student, HND Engineering)

Childcare and family commitments

It is now generally accepted that the absence of good quality childcare provision deters women from returning to study or indeed to work. Although most of the institutions involved in the research offered childcare facilities there were usually long waiting lists for a place and sometimes children under three or two years old were not admitted. There were 32 women in our sample, of whom 20 had children, and 18 of these had children under five. Only three women who were taking full-time courses had children and this is perhaps testimony to the deterrent effect of the lack of childcare provision. These three women and the others who had children and were studying part-time had gone to considerable time and trouble to make arrangements for childcare, often relying on family and friends and requiring considerable organisational ability. For most women studying took place in the evening once the children had gone to bed and had to be fitted round domestic commitments and sometimes unsupportive partners. Childcare concerns were mainly but not solely the concern of women. One man had taken a year out of his Open University course to help his wife look after their new born twins. He could not cope with the demands of a job, studying and two babies. One sympathises!

Thirteen of the 47 who had children talked of there being tension between family commitments and study. In the case of three of these students, problems were severe enough to contribute to their decision to leave their course: for two of the women (one on the university access course and the other on the further education open learning maths course), family demands had impinged on their time so much that they were unable to devote sufficient attention to course work.

Only six students (half of whom were men) talked of difficulties in arranging for the supervision of their children. In most cases, they were able to cope with these. Very occasionally, they had had to take time off to stay at home with the children or – as was done by the further education but not higher education students – take them into lectures with them.

The remaining difficulties tended to be concerned with finding time for both studying and being with their family. Some talked about how much they missed having the time to spend with their children; others described the guilt they felt about the lack of attention they were giving to them:

> [I was worried] I was giving up a lot of my time, [the kids] wouldn't see me, I wouldn't be around to do the stuff that mothers are usually there for. Would they understand? Would they share housework with me– that has to take a back seat ... I'm with the kids for a while and then it's into the books. Everything has to fit ... I don't deprive my kids, I don't shirk my duties but I've got to make both worlds work. My kids are latch-key kids and I don't like it one little bit.
>
> (Female FE student, science/engineering access)

This notion of trying to fit both worlds together was one which was a constant dilemma for the mature students – should their family fit round their studying or should they fit their studying in with their family life? Different students resolved this in different ways but, in general, those on advanced or full-time courses tended to organise their lives so that their family had to fit in with their studying. Coping in these circumstances, therefore, often depended on having a supportive fami'y or partner. Unfortunately, for some, this support had not been available. One of the Open University students, for example, said that her husband had not been supportive and saw studying for a degree as a 'bit of a waste of time' unless she got a good job at the end. This had put pressure on her to make sure that all household chores had been done before she started studying in the evening so that there were no grounds for criticism. In contrast, another of the Open University students spoke of the fantastic support he had got from his wife:

> If it wasn't for my wife a couple of times I'd have packed it in – visions of despair – and I'd have run outside and thrown everything in the bucket. But thanks to my wife I'm still here, still doing it.
>
> (Male HE student, Mathematics degree)

Other time commitments

Fifty-six of the 69 part-time students were in paid employment and 17 (15 of whom were in the further education sector) were taking more than one course. This meant that there were many competing demands on their time. We found that seven of the 11 further education part-time students who had either failed or withdrawn had been taking other courses at the same time. When one looks at the commitments they had taken on, it is not surprising that they ran into difficulties. One of the open learning National Certificate mathematics students, for instance, had a full-time job and was taking Higher modern studies and biology as well. Her aim was to enter teacher training. Because of time pressures and the workload, she gave up the maths temporarily and concentrated on the two Highers. In the end, she passed only one of them. She then decided to become a full-time student so that she could upgrade her Higher English and take Higher anatomy, physiology and health, while at the same time resuming her open learning maths course. She felt that the only way in which she would be able to give sufficient attention to gaining the qualifications she needed was by concentrating full-time on her studies.

Pressures also arose for part-time students from work commitments. One of the students taking the higher education access course had withdrawn because of difficulties in attending classes. He was a shift worker and had not been able to get workmates to cover his shifts when they clashed with course times. He used his holiday leave to try to attend classes but, in the end, felt he had little alternative but to withdraw. He hoped that, if in the future his working times were more predictable, he could re-enrol on the course, taking just one subject at a time.

There is a very real dilemma for adults who want to stay in employment while obtaining qualifications which will allow them to change career. If they enrol on only one course at a time, the process could take many years; however, if they try to speed up the process by doing several courses, they risk taking on too much and doing justice to none. Obviously, it is a decision that only the adult can make, but we believe that if more pre-course guidance were available to part-time students they would have a much better basis on which to make that decision. It is vitally important that they, as well as full-time students, are aware of the workload they are taking on and the considerable time commitment that a course will involve.

What can providers do?

Across all of the case-studies, there was a broadly similar arrangement of guidance provision based on a tier system. Tutors were the first line of assistance but if a problem could not be dealt with at this level, referrals were made to welfare staff. Further referrals could be made to specialist guidance agencies outwith the institution if it was thought necessary. For pre-exit guidance, there was a college or university careers advisory service. In some cases, individual departments and tutors also provided such support.

To what extent was this guidance system used by the adults? We have seen that the students tended to have few personal problems which they had not already anticipated and with which they could not cope. But this does not mean that they did not need any help in this area. Indeed, as we saw in the case of the student whose bursary had been assessed at too low a level, the adults had sometimes sought help from college staff. It was interesting, however, that the students had made little use of college-wide guidance provision other than the careers advisory service. Instead, on the occasions when they did seek help, it tended to be from one of their tutors. Similarly, the type of help which was wanted was likely to be instrumental rather than pastoral in nature: they wanted solutions to particular practical problems rather than to talk about personal problems of a general nature.

There are three important implications here for institutions. First, in exactly the same way as we described in Chapter 3, the quality of the tutor-student relationship was paramount. Students, whether part-time or full-time, were more likely to approach and seek help from staff with whom they felt a rapport. We have already seen that good staff-student relationships can be fostered by tutors being approachable and showing an interest in the students, and by designing courses so that tutors have a proactive role in student welfare. The message for providers, therefore, is that by encouraging the formation of such relationships there are payoffs in making it more likely that students will seek help with both academic and personal problems.

Second, mature students tended to seek help with practical rather than emotional difficulties. This meant that staff were likely to find such problems easier to deal with because they felt less awkward about discussing these. However, it is important that tutors have access to the kind of information that adults are likely to need or are able to refer them on to specific agencies or individuals who can help. Staff development which raised awareness of mature students' needs and advised tutors on how to deal with adults' problems would seem to be helpful.

Finally, pre-exit advice was the one area with which the adults were likely to seek the help of college or university support service personnel. This was also the area in which the adults tended to feel that more could be done. For example, one of the full-time second year BSc Engineering Systems students was unhappy with his course and wanted advice on what he could do. He approached the college careers office but was told that they did not have time to see second year students. The result was one very unhappy and demotivated student who subsequently failed his exams and withdrew from the course.

Students on the part-time SCE Physics courses also felt let down by the lack of pre-exit advice. They wanted to know more about both educational and vocational options and yet did not know where to turn for this advice. Although the college did have a careers advisory service, it appeared to be aimed at full-time students.

Our findings suggest that the challenge for providers is to find a way of offering pre-exit advice to students which:

- is available to full-time, part-time and open learning students
- can be used by all students regardless of year of course
- covers both educational and vocational options
- helps students to select the subjects on their current course which are appropriate for the course or career that they want to go on to next

Summary

In this chapter, we showed the way in which personal factors could affect ability to cope. In particular, the high motivation of adults could sometimes compensate for lack of background knowledge because it led them to strive to understand their course work and to apply themselves tenaciously until they did. In addition, their commitment to taking the course meant that, before starting, they had planned how they would deal with potential financial, childcare and work commitments.

However, although the adults, in general, were able to cope well with personal problems and tended to make little use of college-wide guidance systems, they did sometimes need help with finding solutions to practical problems. In addition, they wanted more advice on careers and subsequent educational opportunities.

5 Do some adult students cope better than others?

So far we have highlighted a number of factors emerging from the data which help adult students cope. These were previous subject knowledge, motivation, having a well organised and supportive domestic environment and the responsiveness of institutions to the needs of adult students, through the provision of tutor support, study skills and supportive assessment procedures. As mentioned in Chapter 2, previous research has indicated that student success is dependant on a number of factors which can interact in unpredictable ways. These include motivation, previous and relevant subject knowledge, personality and self-confidence, learning processes, teaching methods and institutional climate to name but a few. There is, therefore, some congruence between the findings emerging from this study and a number of others (see Lowden et al 1990 for a review of previous research). Indeed many of our findings are similar to those of Entwistle et al (1989) who investigated the experience of mostly younger students in electrical engineering in Scottish higher education.

In an attempt to investigate these factors further, we examined data from students whom, we suspected, had distinctive views on their experience in further or higher education. These were:

- students who had failed or withdrawn from their courses
- part-time students
- female students.

We consider each of these in turn before concluding with a brief comment on institutional climate.

Failure and withdrawal

Of the 107 students across the eight case-studies, nine failed and 19 withdrew. We interviewed nine of the students who had withdrawn specifically to explore their reasons for doing so. The other ten withdrawals and the nine failures were interviewed in the general sample at a time when neither they nor we knew they were going to be unsuccessful. Our findings, therefore, are based on a very small sample and are speculative, offering suggestions and possibilities rather than robust and statistically generalisable information. Let us look first, however, at the pattern of failure and withdrawal across the courses. Table 5.1 gives details.

Table 5.1: Number of passes, fails and withdrawals

		Further education			
TOTALS		**FE1 (SCE Physics)** (7)	**FE2 (Access)** (17)	**FE3 (NC modules)** (17)	**FE4 (HNC/HND Engineering)** (11)
Passes	(38)	5	16	8	9
Fails	(3)	2	0	0	1
Withdrawals:					
Total	(11)	0	1	9	1
Before our interviews	(6)	0	1	4	1
After our interviews	(5)	0	0	5	0

		Higher education			
TOTALS		**CI1 (Advanced Engineering)** (12)	**CI2 (BEng)** (16)	**OU (Mathematics)** (13)	**University (Access)** (14)
Passes	(41)	9	12	10	10
Fails	(6)	2	3	–	1
Withdrawals:					
Total	(8)	1	1	3	3
Before our interviews	(3)	0	0	–	3
After our interviews	(5)	1	1	3	0

It is striking that the largest percentage of withdrawals was on the open learning mathematics modules, where perhaps the absence of face-to-face tutor contact and the absence of contact with other students contributed to the anxiety of those suffering doubts about their ability to cope. It is interesting, though not scientific, to compare this with the Open University figures, where tutors took the initiative in telephone contact, monthly face-to-face tutorials were available for those who had study centres within reasonable travelling distance and where student attendance at an annual summer school was normally required.

Looking in more detail at the data from students whom we interviewed specifically because they had withdrawn, a mixture of personal circumstance and academic reasons emerge for their withdrawal. For example, the one student who withdrew from the FE access course did so because she felt she would never come to terms with physics. Her

experience has not blunted her appetite for returning to study, however, and she intends to take up some non-science Highers. In contrast, one of the women withdrawing from the university access course cited pressure of childcare and other domestic commitments. In sum, two students cited academic difficulties as the main reason for withdrawing, two cited employment related reasons (one got a new job, another could not fit in the demands of studying with shift work), two cited personal reasons and the remaining three offered a mixture. One woman on the FE maths course, for instance, gave up when she was offered a university place in a subject for which no maths qualification was required. She was delighted as she was finding the module a struggle, exacerbated by lack of face-to-face contact with a tutor.

It may, of course, be easier to cite personal circumstances than academic difficulty as a reason for withdrawing. We, therefore, investigated whether those who had withdrawn or failed mentioned a lack of background knowledge as a disadvantage. Again, the picture is not clear-cut. Of the nine students who withdrew or failed from HNC courses or above, five mentioned lack of background knowledge. In non-advanced courses, four of the 16 who withdrew or failed mentioned lack of subject knowledge. As interesting perhaps is the statistic of only one student withdrawing from a course – FE maths – because it was too basic or easy.

Examining the data of those who failed, most had said in earlier interviews that they were only just managing or were struggling. Some, particularly in the advanced level courses cited difficulties with particular subjects, electronics being the most common. Others mentioned that as the course became more intense and the work moved at a faster pace they were in difficulty. These students did not stand out in any way in terms of characteristics such as age, gender or previous qualifications from their successful counterparts. For example, the three students who failed advanced level engineering qualifications, all had either HNDs or HNCs but had gained them five years or more previously. Two of these students had no children while one had two children at primary school. Nevertheless, students with similar qualifications gained at similar times passed their courses. The absence of any pattern, whether in terms of age, employment status or family circumstances, is a striking feature of the failures, indicating how difficult it is for admission tutors to be able to predict success or failure. No profile of a mature student likely to fail emerges from our data. Rather a complex interaction of personal problems, lack of previous knowledge, dislike of mathematics, workload and time factors seems to take place.

The ten students who withdrew after the interviews tended to see themselves as struggling with the course academically at the time they were interviewed. However, we have no way of knowing what happened subsequent to the interview to make them withdraw.

In summary, therefore, reasons for withdrawal involved academic, personal or employment circumstances. Some of these were positive – gaining employment, being offered a degree place, finding the work too easy. Others were negative, taking on too many commitments, finding

the work too demanding or family circumstances not being conducive to studying. A clear profile of such students does not emerge and a study focusing on this issue would be needed to increase our understanding of the reasons for withdrawal and whether colleges could tackle the problem more successfully. It is difficult to gauge what an acceptable level of withdrawal and failure might be. Looking across the eight courses what is striking is the level of course completion and success with the exception of the open learning modules. This relatively high withdrawal rate is all the more remarkable since the length of the course was flexible and pacing had been carefully considered since many students came to the course with little or no previous qualification in maths and/or unhappy memories of maths as a subject. Tutors also said that deadlines for work could be re-negotiated if students ran into problems. Particular attention was paid to pacing, with one tutor emphasising:

> We have to make sure there is immediate success with the first study unit. Once they get over the initial hurdles, they're fine.
>
> (Course leader)

We emphasise this point to highlight the subtlety and complexity of reasons for student failure and withdrawal and to indicate that 'fixing' any one factor is no guarantee of success.

Part-time and full-time students

Of the 107 students interviewed, 38 were on full-time courses. Unsurprisingly perhaps, part-time study is often a preferred option for adult students who usually have greater financial and domestic responsibilities than younger students. The overwhelming majority of students (72) were aged between 25 and 39, when such responsibilities are likely. However, part-time courses differ in their attendance requirements and the amount of work involved. The part-time BEng degree, for instance, was a five year, day-release course, whereas the part-time Higher Physics involved one evening a week over nine months. Furthermore, students can be following more than one part-time course. In fact 17 students were doing so, with the greatest number, 11, combining the FE maths course with other courses. Table 5.2 gives details.

Table 5.2: Numbers of students doing additional courses

Course (f-t = full-time, p-t = part-time)		Total N	Doing additional courses
BEng	(p-t)	16	0
Advanced Engineering	(p-t and f-t)	12	0
OU Maths	(p-t)	13	2
University Access	(p-t)	14	0
Higher/'O' grade Physics	(p-t)	7	4
FE Access	(f-t)	17	0
HNC/D Engineering	(f-t)	11	0
FE Maths	(p-t)	17	11
TOTAL		107	17

The other courses being taken varied from 'O' grades and Highers to National Certificate modules. From time to time students realised they had bitten off more than they could chew in their desire to gain qualifications. For example, one of the women who withdrew from the FE maths course felt that she could not cope with this and Higher English as well as working full-time. Thus it would be mistaken to see part-time students as a homogenous group. Part-time could vary from one to two or three evenings a week, depending upon the number of courses being taken. Similarly, part-time study could be combined with full-time employment or part-time employment, childcare and other domestic commitments or voluntary work. It is noteworthy that of the 69 students who were following part-time courses of whatever nature, 56 were in employment, five were unemployed and eight were housewives. The demands on these students, one can guess, must have been considerable. It is, in our opinion, considerable testimony to their commitment, hard work and enthusiasm and that of their tutors, that only six failed their particular course (see Table 5.1 for details). We do not know what the fate of those who withdrew would have been. Of the 69 students following part-time courses, 17 withdrew. Fifty-two students' results are known. Of this 52, six failed, about 11%.

The picture is similar for full-time students. Of the 38 interviewed, three withdrew and of the remaining 35 three failed, about 9%. Again, however, it would be mistaken to view the full-time students as a homogenous group. Some students took on substantial part-time employment in order to alleviate financial problems, while others had family commitments which ate into their study time. Students themselves were conscious that their personal circumstances differed and that this could influence academic performance. As one younger student living at home with his parents commented, 'It's just me and the modules ... I don't know how others [with family responsibilities] manage.'

In short, therefore, comparing student performance by mode of attendance did not reveal any significant insights into reasons for success or failure. A much larger sample of students would be needed to detect any pattern and students' personal circumstances would tend to confound any hypothesis about effects on attainment by mode of attendance. Furthermore, as already suggested, part-time courses differ in the amount of face-to-face contact with tutors and other students. All we can say on the basis of this small sample of adult students is that there is no vast difference in numbers failing in terms of full-time and part-time provision.

Female students

We thought it important to look specifically at female students to investigate whether their pattern of attainment varied significantly from that of their male counterparts. In the event this proved almost impossible to do. Female students were conspicuous by their absence on advanced level courses, only five in all and three of these were on the OU mathematics course. They were more in evidence in non-advanced courses, particularly the two access courses and the FE mathematics course. Here again, however, there were no valid comparisons to be made. There were no failures in either the FE access course or the maths course and only one failure in the university access course. There is, therefore, no base from which to draw conclusions. It is worth noting that the university access course was the only one with more women than men (see Appendix 2).

Institutional climate

Research on school effectiveness draws attention to the importance of school climate or ethos affecting student attainment (eg Mortimore et al 1988; Rutter et al 1979). It seems plausible to assume that there is also an 'institutional effect' in further and higher education, although that effect will be much harder to detect given the larger numbers of staff and students, and the different organisational and management structures. Capturing the character of a university or college demands more intensive fieldwork than we were able to carry out in this study. However, there are three points worth making.

First, our impression was that particular courses had a distinctive ethos which overrode the institutional ethos. For example, one further education college had staff who were accustomed to teaching adults, had made considerable efforts to ensure the library and other facilities were available on a drop-in basis outside normal hours and indeed had a flourishing and well-regarded access course. Nevertheless, the demands of Higher and 'O' grade Physics taught on one evening per week overrode all the good practice the tutor employed in the access course. The pressure to get through the syllabus to make sure students had covered the ground for the examination was paramount. Furthermore, the patient and detailed pre-entry guidance given to access students tended not to be available to these evening class students. It was up to students to take the initiative and contact the tutor. Clearly issues of staffing and other resources are important here and five of the seven students passed, one of the failures

attempting Higher Physics against the tutor's advice. And yet it would be a pity if much of the good work seen on access courses was seen as inappropriate in other courses.

Secondly, access courses, the Open University course and the like, which cater primarily for adults, tend to have well-developed guidance systems, planned to anticipate adult students' likely problems and needs. Not only that, these courses make few assumptions about adults' prior knowledge and pace the work through modules using continuous assessment to give adults regular news about their progress. Modules are not without their problems as Chapters 2 and 3 indicated but they provide a step by step approach which seems to boost adults' confidence in their ability to learn. Whether they equip adults with the concepts and abstract knowledge necessary to cope with degree level engineering is not yet known.

Thirdly, we were struck by the tremendous response of FE colleges, in particular, to their changing population of students. The modularisation of non-advanced courses, the unitisation of HNC/Ds, the provision of open and distance learning and the sheer breadth of students catered for is breathtaking. FE colleges cater for students requiring help with literacy and numeracy, students with learning difficulties, students on highly-specialised and high level design and technology courses and managers requiring up-dating on computing, accountancy and general management. Their climate is changing as is that of higher education institutions. In the turbulent world in which all these institutions now find themselves it is worth reiterating that their 'core business' is facilitating student learning. In the last chapter we summarise what these institutions can do to help adult students do just that.

6 Helping adults cope

In this final chapter, we summarise what helped students to cope with their courses and offer points for consideration about how providers could support adults.

Some of these, particularly in the area of pre-entry guidance have considerableresource implications. Others involving course design, for instance, require little or no additional resources. The suggestions are offered as starting points for discussion and debate about what are feasible and desirable features of provision.

What helps adults cope?	*What could providers do?*
Adequate prior knowledge of: • *subject(s) to be studied* • *mathematics*	*Provide a pre-entry guidance system which:* • Includes all students, regardless of mode of study. This guidance does not have to be face-to-face. General information could be available in written form and personal guidance could equally well be done via the telephone – what is paramount is the quality and depth of guidance • Is individualised for each student • Provides comprehensive information on subject content, depth of coverage and prior knowledge students will be assumed to have • Includes career counselling • Explores with students whether the intended course matches their prior background knowledge and personal or vocational aims • Gives a realistic idea of the workload (including teaching hours, practicals, home study and assessments) • Provides applicants with the opportunity to talk to current or past students • Suggests alternatives for those for whom the course is not suitable

What helps adults cope?	What could providers do?
Being able to learn the content	*Be responsive in course delivery by:* • Pacing the content so that the level of difficulty increases gradually • Allowing the first few weeks of the course to serve as a foundation • Encouraging student success early on in the course so that adults develop confidence in their ability to cope *Encourage students to seek help by:* • Tutors being approachable and helpful • Making the development of staff-student rapport an explicit part of course design • Tutors treating mature students as equals • Tutors expressing a genuine interest in students • On courses which involve only limited tutor contact: — ensuring there is some face-to-face contact — taking a proactive approach to contacting students *Use assessment to:* • Give frequent and regular feedback on student performance. However, overloading students with assessments can be counter-productive. It can lead to short-term, superficial learning rather than to understanding • Highlight the things which have been done well • Provide detailed comment and constructive criticism. This, as well as the quick return of marked assignments, was particularly important on courses where face-to-face contact was limited • Help students to judge their understanding of material

Provide supplementary help for those experiencing difficulties by offering:

- Regular, voluntary 'drop-in' classes
- Additional practical exercises, plus written solutions and model answers
- Written self-help packages

What helps adults cope?	*What could providers do?*
	Encourage students to acquire study skills. Thought important by students were: • Time management and self-discipline • Note-taking • Continued practice with problem-solving exercises • Report and essay writing • Use of the library • Examination techniques
	Encourage student self help groups
Having: • *few personal problems* • *a well organised personal life* • *clear, strong motivation*	*Adults tend to need practical rather than pastoral help. Providers can help by:* • Tutors being friendly and approachable • Ensuring that tutors have access to the kind of information which adults are likely to need (eg advice on finance and welfare rights) or that they are able to refer students to specific agencies or individuals who can help • Being understanding when adults' arrangements have broken down or when other commitments impinge on study time (eg when they have to take time off to look after their children or when work commitments make it impossible to attend classes) • Providing on-going career and educational counselling for all students, irrespective of mode and year of study • INSET on catering for adults' needs

Clearly institutional backing in the shape of senior management commitment to these areas is required if tutors are to fulfil these roles.

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Appendix 1 — The courses

Higher education sector

CI1 – Advanced engineering

BSc Engineering Systems (full and part-time). The ordinary degree was three years and four years part-time. If appropriate, students could do an additional year to achieve an Honours degree. On the part-time degree, a six week full-time block was included. Entry requirements were flexible and included HNC/HNDs, relevant highers and SCOTVEC modules equivalent to ONC/OND. Other qualifications and relevant industrial experience was also considered. These were modular based degree courses and assessed students using continuous assessment as well as tests, practical report writing and end of year exams. With appropriate qualifications, some students could obtain exemptions from taking some units. An Assessed Work Place Learning Programme was also used for those students doing day-release. These courses met the Engineering Council's academic requirements for Incorporated Engineer status.

HND Mechanical Engineering (full-time). This was a two year unitised course with an emphasis on continuous assessment with end of term exams. The entry requirements were flexible with SCOTVEC qualifications, SCEs and work experience all being considered. This course met the Engineering Council's academic requirements for Incorporated Engineer status. Those students who did well on this course had the option of transferring to the BSc Engineering Systems or other engineering degree courses within the institution.

MSc Electrical Engineering (part-time). This was a three year modular based course, part of which was a CNAA post graduate diploma. Assessment was based on exams and practical work reports. Entry requirements for the course were flexible with relevant degrees, HNDs and industrial experience being taken into account.

CI2 BEng Engineering (part-time)

This was a five year, day-release course. There was an emphasis on electronics and electrical subjects. Entry requirements for adults were flexible but were based on an HND or equivalent, including highers. Continuous assessment, including practical projects, end of term and end of year exams were used.

Open University Maths degree units (open learning)

The units included in this case-study were M261 Maths in Computing, MST204 Maths Models and Methods and MST205 Fundamentals of Computing. The units were taken as part of an OU degree. Each unit would normally take ten months. There were no entry requirements for the units

but students were advised to have first done the foundation maths course. In addition to final exams, continuous assessment based on monthly assignments and computer marked-multiple choice assignments were used. Monthly face-to-face tutorials were available for those students who had study centres within reasonable travelling distance. Attendance at an annual summer school was normally required.

University Science access (evening, day or both)

The aim of this course was to prepare students for possible entry to higher education. The course could be taken over one or two years, although most students completed it within one year. The subjects available to students were maths; chemistry I and II; biology; non-science subjects such as geography and languages. In each subject taken, continuous assessment accounted for 60% of the students' marks and final exams for 40%. To obtain the access certificate, students had to successfully complete 4 of the modular subjects within the two years. There were no entry requirements for the course.

Further education sector

FE1 — SCE Physics (evening)

The adults in this case-study were doing a SCE 'O' Grade or Higher Physics course, attending one night a week for nine months. The courses were based on the standard syllabus with a final exam. No entry qualifications were required for either course.

FE2 — Science access (full-time)

This was a nine month course which, although based on National Certificate modules, also used an additional grading system to assess students. The entry requirement for this course was an 'O' grade maths or equivalent. The main modules were maths, science and engineering based.

FE3 — Maths National Certificate modules (open learning)

The adults we interviewed were doing either the G2 or G3 Maths courses. Although the courses lasted about eight months, the students could, to some extent, negotiate extensions. On both courses continuous assessment was used, but in the case of the G3 course there was also a final exam. There were no entry requirements for either course. There was little opportunity for face-to-face tuition. However, students could, if they wished, drop in to the college to see staff about the course work.

FE4 — HND and HNC Electrical/Electronic Engineering (full-time)

The HNC course was a one year course sponsored by the Employment Department as part of their Employment Training (ET) scheme. This course was not unitised and used end of year exams. The HND was a two year unitised course, and used continuous assessment, end of term and end of

year exams. Students on the HND studied a broad range of subjects before choosing the options which were best suited to their intended career. Entry requirements for adults on the HND were flexible and included City and Guilds, National Certificate modules and SCEs. For the HNC, entry requirements were also flexible, but it was recommended that applicants would benefit from ONC level or equivalent qualifications including SCOTVEC.

	C12 (BEng) (16)	C11 (Advanced Engineering) (12)	OU (Mathematics) (13)	University (Access) (14)	FE1 (SCE Physics) (7)	FE2 (Access) (17)	FE4 (HNC/HNDEngineering) (11)	FE3 (NC modules) (17)	Totals (107)
Number doing course	BEng 16	BSc Eng 7 HND Mech Eng 4 MSc Elect Systems 1	Maths & Computing 10 Maths methods 2 Maths 1	Science & maths 6 Science without maths 3 Science + non-science 5	'O' Grade 4 Higher 3	Science Access 17	HND 7 HNC 4	G2 maths 4 G3 maths 13	
Number of students									
Male	15	12	10	5	4	11	10	8	75
Female	1	–	3	9	3	6	1	9	32
Mode of attendance	Part-time BEng 16	*Full-time* BSc Eng 6 HND Mech Eng 4 *Part-time* BSc Eng 1 MSc Elec Systems 1	Open learning 13	Evening 10 Day 3 Both 1	Evening 7	Full-time 17	Full-time 11	Open learning 17	
Age									
<25	1	5	1	–	1	7	2	2	19
25-29	6	5	3	2	1	5	4	3	29
30-39	7	2	5	7	5	4	4	9	43
>40	2	–	4	5	–	1	1	3	16
Employment during course									
Employed	16	2	13	7	4	–	–	14	56
Unemployed	–	–	–	2	3	17	–	–	5
Full-time student	–	10	–	–	–	–	11	–	38
Houseperson	–	–	–	5	–	–	–	3	8
Employment prior to course									
Employed	16	12	13	7	3	11	4	14	80
Unemployed	–	–	–	–	3	3	3	1	10
Part-time student	–	–	–	–	–	1	4	–	5
Houseperson	–	–	–	7	1	2	–	2	12
Highest qualification									
Degree	–	–	2	–	1	–	1	–	4
Professional	–	–	–	2	1	–	–	–	3
HNC/HND	15	3	5	–	1	–	1	1	26
Highers	1	4	5	8	2	9	3	3	35
SCOTVEC	–	2	1	–	–	2	2	5	12
>5 'O' Grades	–	3	–	3	2	3	2	1	14
1-4 'O' Grades	–	–	–	–	–	3	2	4	9
Apprenticeship	–	–	–	–	–	–	–	–	–
Other	–	–	–	–	–	–	–	–	–
None	–	–	–	1	–	–	–	3	4
Qualifications used for entry to course	HND or equiv 15 Incl highers 1	HNC/HND 2 ONC 4 SCE + experience 6	None required 0	None required 0	None required 0	O' Grade maths or equivalent 17	SCOTVEC or equiv 7 Highers 2 HNC 1 Degree 1	None required 0	
Number doing other courses	0	0	Other similar courses 2	0	Other SCEs 4	0	None 0	Various SCE/SCOTVEC/ work training courses 11	17
Students with children (youngest recorded)	0-5 4 Primary age 2 Secondary age – 16 and over –	3 – – –	2 2 4 1	3 3 1 1	– 3 – –	1 2 1 –	1 1 1 –	4 5 1 1	18 18 8 3
Women with children	0	0	3	7	2	2	1	5	20

Appendix 2 — Characteristics of students interviewed